



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS

7 FEB 2016

MEMORANDUM FOR SGOBS

ATTN: MAJ RENEE MATOS

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled Use of Data to Develop a Code Blue Training Program presented at/published to International Meeting on Simulation in Healthcare (IMSH), FL, 28 January -1 February 2017 in accordance with MDWI 41-108, has been approved and assigned local file #17033.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are 59 MDW staff member, we can forward your request for funds to the designated wing POC.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
 - a. In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (SG5 O&M); SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP) ; Grants; etc.]
 - b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.
2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.
3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.
4. Attach a copy of your abstract, paper, poster and other supporting documentation.
5. Save and forward, via email, the processing form and all supporting documentation to your unit commander, program director or immediate supervisor for review/approval.
6. On page 2, have either your unit commander, program director or immediate supervisor:
 - a. Print their name, rank/grade, title; sign and date the form in the approving authority's signature block or use an electronic signature.
7. Submit your completed form and all supporting documentation to the CRD for processing (59crdpubspres@us.af.mil). **This should be accomplished no later than 30 days before final clearance is required to publish/present your materials.** If you have any questions or concerns, please contact the 59 CRD/Publications and Presentations Section at 292-7141 for assistance.
8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.
9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. **Note:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.
10. If your manuscript is accepted for scientific publication, please contact the 59 CRD/Publications and Presentations Section at 292-7141. This information is reported to the 59 MDW/CC. All medical research or technical information publications/presentations must be reported to the Defense Technical Information Center (DITC). See 59 MDWI 41-108, *Presentation and Publication of Medical and Technical Papers*, for additional information.
11. The Joint Ethics Regulation (JER) DoD 5500.07-R, *Standards of Conduct*, provides standards of ethical conduct for all DoD personnel and their interactions with other non-DoD entities, organizations, societies, conferences, etc. Part of the Form 3039 review and approval process includes a legal ethics review to address any potential conflicts related to DoD personnel participating in non-DoD sponsored conferences, professional meetings, publication/presentation disclosures to domestic and foreign audiences, DoD personnel accepting non-DoD contributions, awards, honoraria, gifts, etc. The specific circumstances for your presentation will determine whether a legal review is necessary. **If you (as the author) or your supervisor check "NO" in block 17 of the Form 3039, your research or technical documents will not be forwarded to the 502 ISG/JAC legal office for an ethics review.** To assist you in making this decision about whether to request a legal review, the following examples are provided as a guideline:

For presentations before professional societies and like organizations, the 59 MDW Public Affairs Office (PAO) will provide the needed review to ensure proper disclaimers are included and the subject matter of the presentation does not create any cause for DoD concern.

If the sponsor of a conference or meeting is a DoD entity, an ethics review of your presentation is not required, since the DoD entity is responsible to obtain all approvals for the event.

If the sponsor of a conference or meeting is a non-DoD commercial entity or an entity seeking to do business with the government, then your presentation should have an ethics review.

If your travel is being paid for (in whole or in part) by a non-Federal entity (someone other than the government), a legal ethics review is needed. These requests for legal review should come through the 59 MDW Gifts and Grants Office to 502 ISG/JAC.

If you are receiving an honorarium or payment for speaking, a legal ethics review is required.

If you (as the author) or your supervisor check "YES" in block 17 of the Form 3039, your research or technical documents will be forwarded simultaneously to the 502 ISG/JAC legal office and PAO for review to help reduce turn-around time. If you have any questions regarding legal reviews, please contact the legal office at (210) 671-5795/3365, DSN 473.

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement:

"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving humans:

"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02_AFI 40-402."

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving animals, as required by AFMAN 40-401_IP :

"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS			
1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol) Renee Matos, Maj, O4, SGOBS	3. GME/GHSE STUDENT: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	4. PROTOCOL NUMBER: N/A
5. PROTOCOL TITLE: (NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.)			
6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Use of Data to Develop a Code Blue Training Program			
7. FUNDING RECEIVED FOR THIS STUDY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO FUNDING SOURCE:			
8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
9. IS THIS MATERIAL CLASSIFIED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO NOTE: If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.			
11. MATERIAL IS FOR: <input checked="" type="checkbox"/> DOMESTIC RELEASE <input type="checkbox"/> FOREIGN RELEASE CHECK APPROPRIATE BOX OR BOXES FOR APPROVAL WITH THIS REQUEST. ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED.			
<input type="checkbox"/> 11a. PUBLICATION/JOURNAL (List intended publication/journal.)			
<input type="checkbox"/> 11b. PUBLISHED ABSTRACT (List intended journal.)			
<input type="checkbox"/> 11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)			
<input checked="" type="checkbox"/> 11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meeting.) International Meeting on Simulation in Healthcare (IMSH), Florida, 28 Jan - 1 Feb 2017			
<input type="checkbox"/> 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.)			
12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ASSIGNED FILE # _____ DATE _____			
13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).			
DATE January 20, 2017			
14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email) Matos, Renee I., renee.i.matos.mil@mail.mil			15. DUTY PHONE/PAGER NUMBER 210-916-8212/210-513-7547
16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.			
LAST NAME, FIRST NAME AND M.I.	GRADE/RANK	SQUADRON/GROUP/OFFICE SYMBOL	INSTITUTION (If not 59 MDW)
a. Primary/Corresponding Author Matos, Renee I.	Maj/O4	959 MDOS	SAMMC
b. Delaney, Heather M.	MAJ/O4	US Army	BAMC
c. Borgman, Matthew A.	LTC/O5	US Army	BAMC
d. Trevino, Raquel	GS-12	CIV	BAMC
e.			
17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401_IP, AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.			
18. AUTHOR'S PRINTED NAME, RANK, GRADE Renee I. Matos, Maj, O4		19. AUTHOR'S SIGNATURE MATOS.RENEE.I.1008456824	20. DATE January 19, 2017
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE Brian M. Faux, Lt Col, O5		22. APPROVING AUTHORITY'S SIGNATURE	23. DATE January 19, 2017

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS		
1st ENDORSEMENT (59 MDW/SGVU Use Only)		
TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	24. DATE RECEIVED January 19, 2017	25. ASSIGNED PROCESSING REQUEST FILE NUMBER 17033
26. DATE REVIEWED January 19, 2017	27. DATE FORWARDED TO 502 ISG/JAC	
28. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES If yes, give date. January 19, 2017 <input type="checkbox"/> N/A		
29. COMMENTS <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED Approved training presentation with appropriate disclaimers based on training curriculum implementation		
30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Kupferer/GS13/Human Research Subject Protection Expert	31. REVIEWER SIGNATURE KUPFERER,KEVIN R. 1086667270 <small>Digitally signed by KUPFERER KEVIN R 1086667270 DN: cn=KUPFERER KEVIN R 1086667270, o=USAF Date: 2017.01.19 13:15:45 -0500</small>	32. DATE January 19, 2017
2nd ENDORSEMENT (502 ISG/JAC Use Only)		
33. DATE RECEIVED	34. DATE FORWARDED TO 59 MDW/PA	
35. COMMENTS <input type="checkbox"/> APPROVED (In compliance with security and policy review directives.) <input type="checkbox"/> DISAPPROVED		
36. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	37. REVIEWER SIGNATURE	38. DATE
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42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	43. REVIEWER SIGNATURE	44. DATE
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45. DATE RECEIVED	46. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> COULD NOT BE REACHED <input type="checkbox"/> LEFT MESSAGE	
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48. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	49. REVIEWER SIGNATURE	50. DATE



Society for Simulation in Healthcare
JANUARY 28-FEBRUARY 1, 2017 | ORLANDO, FL USA

Use of Data to Develop a Code Blue Training Program

- Renée I. Matos, MD, MPH
- Heather M. Delaney, MD
- Raquel G. Trevino, RN, BSN, MS-BC, MA
- Matthew A. Borgman, MD

**PATIENTS:
THE HEART OF
SIMULATION**

#IMSH2017

BROOKE ARMY MEDICAL CENTER
A TEAM OF TEAMS...CREATING TOMORROW'S TODAY

Disclosure

- We have no significant financial interest or other relationship with any products, manufacturers, or providers of service
- We will not be discussing any non FDA-approved or off-label uses of any products/providers of service
- The views expressed herein are those of the presenters and do not reflect the official policy or position of Brooke Army Medical Center, the U.S. Army Medical Department, the U.S. Army Office of the Surgeon General, the Department of the Air Force, the Department of the Army or the Department of Defense or the U.S. Government.
- The views expressed are those of the presenters and do not reflect the official views or policy of the Department of Defense or its Components.

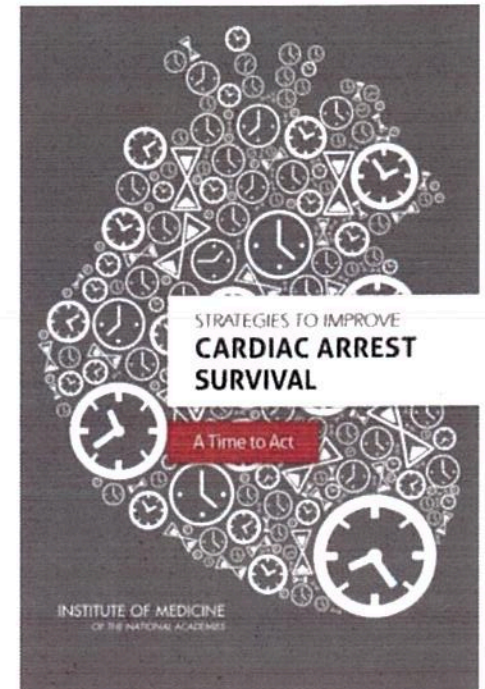
Learning Objectives

1. Identify methods to determine institutional gaps in performance (knowledge, skills, or attitudes) related to Code Team performance.
2. List strategies to garner administrative support for a new comprehensive training program and create a sense of urgency for change.
3. Describe methods for linking learning objectives to performance gaps utilizing high-fidelity simulation scenarios with enhanced technology.



Background: Identifying the Problem

- Poor quality CPR should be considered a preventable harm
- High-quality CPR is the primary component in influencing survival from cardiac arrest



Meaney PA, et al. *Circulation*; 2013.
Morrison LJ, et al. *Circulation*; 2013.
Institute of Medicine; 2015.

2015 BLS Guidelines

- Depth >2 inches
- Rate 100-120
- Full Recoil
- Pauses < 10 seconds
- Rapid defibrillation
- Do not hyperventilate

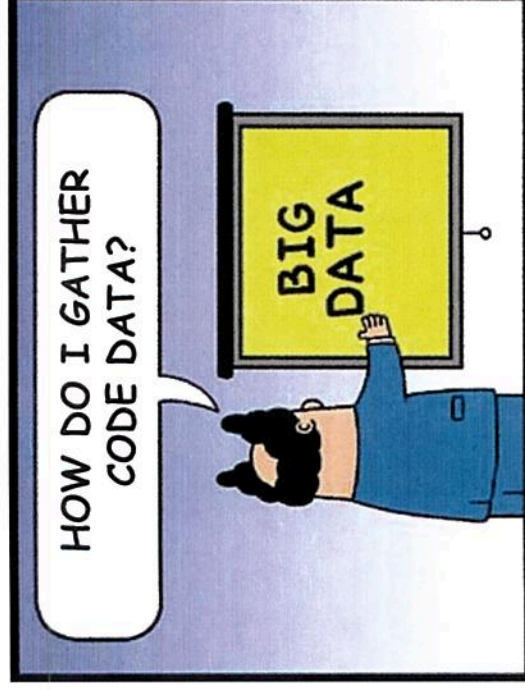
**Not too fast;
Not too hard**



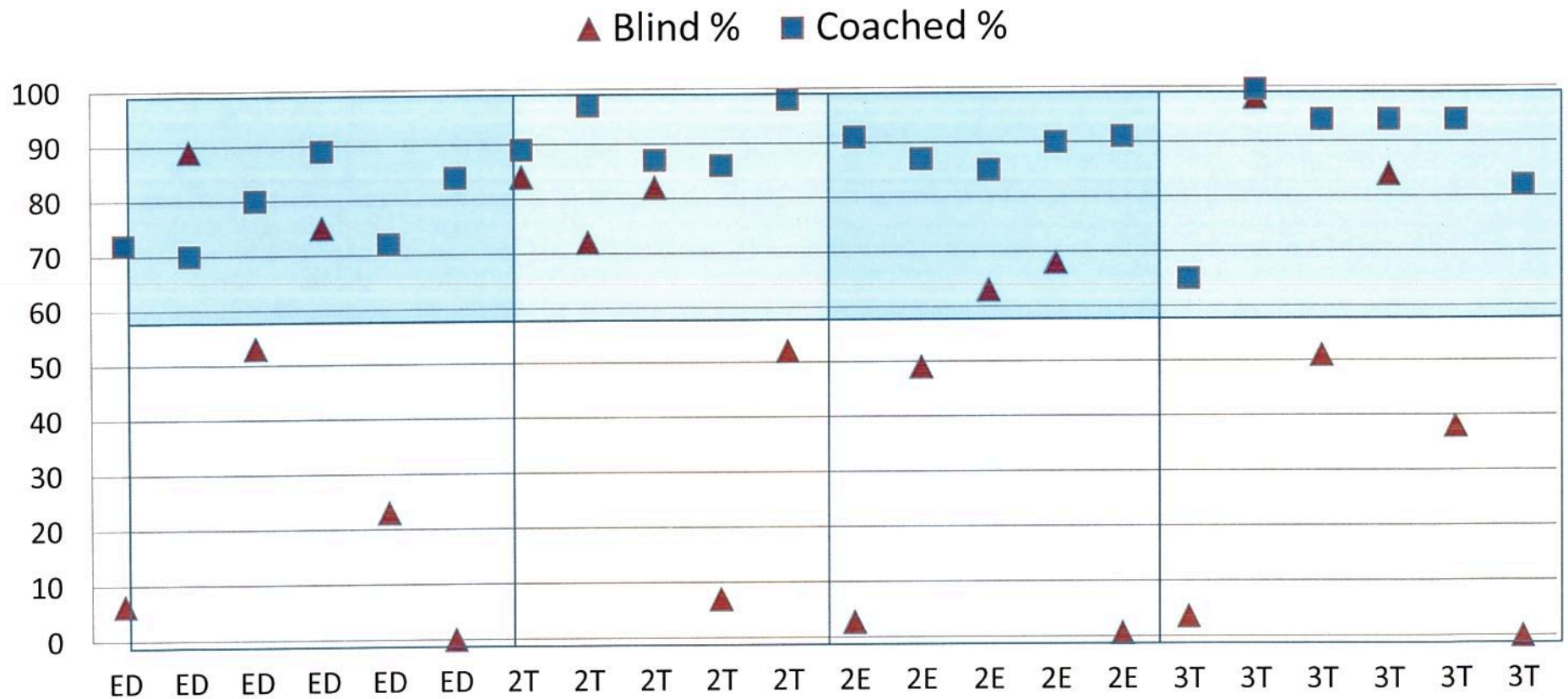
**100-120/min
5-6cm deep**



Step 1: Gather Your Data

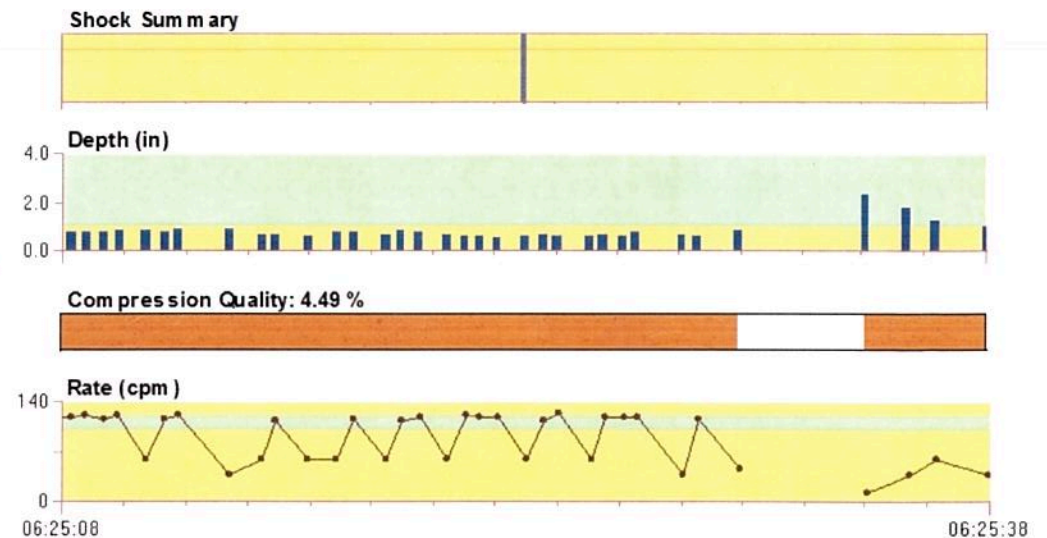
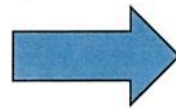


Pre-Study: Compressions in Target



Baseline Data Collection

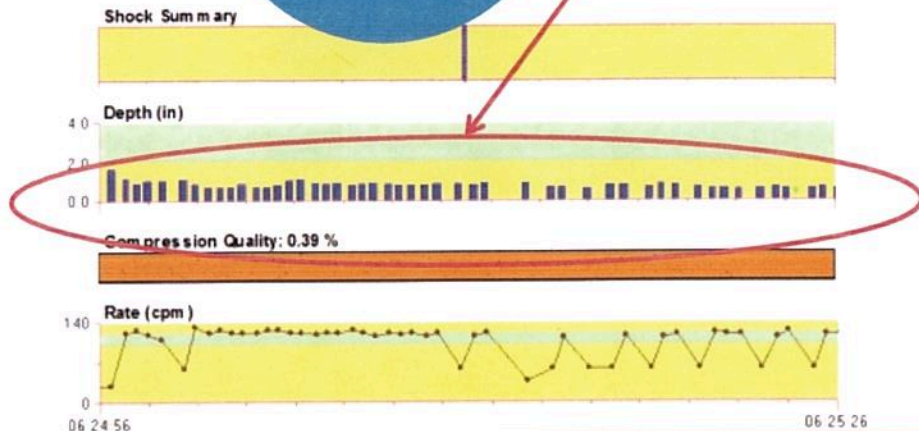
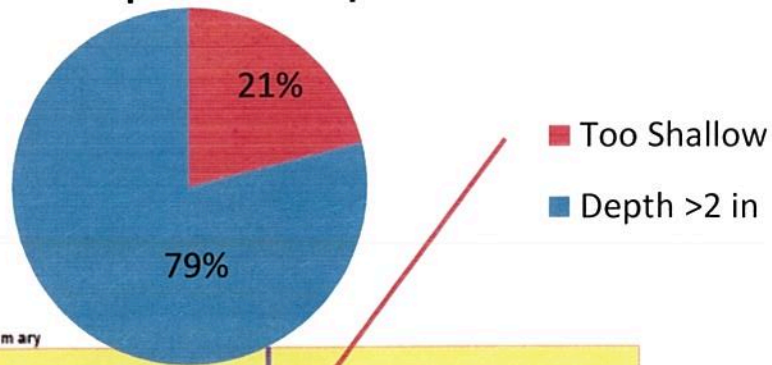
- **February 2015:** New defibrillators with the ability to provide real-time CPR quality feedback on rate, depth, & pauses
- Transmission of code events via WiFi after the event



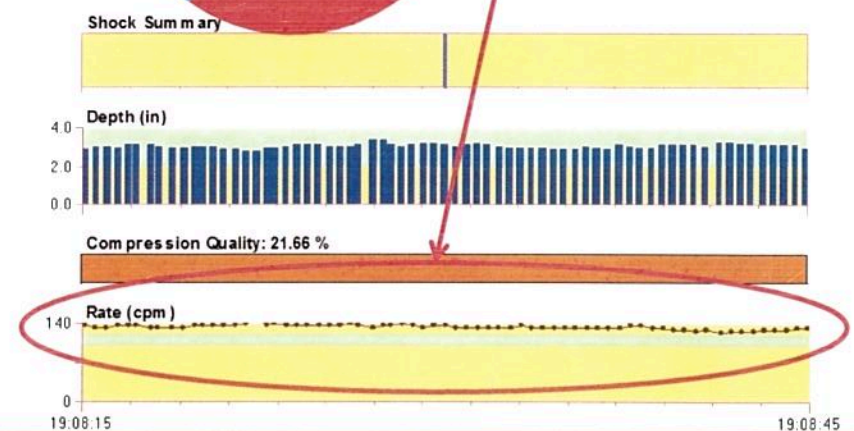
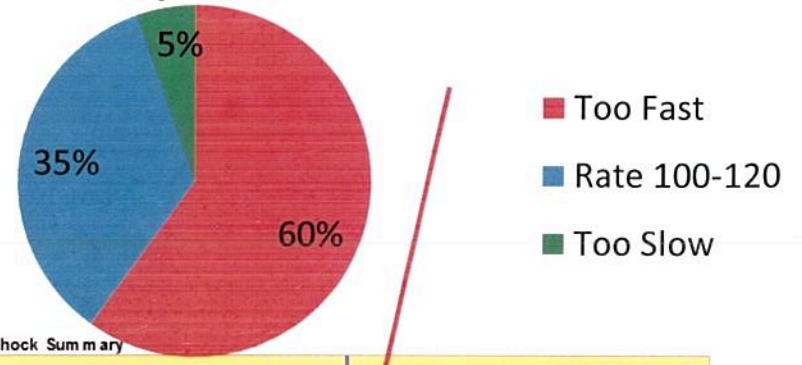
Opportunities for Improvement

- 27% of CPR in Target (Rate & Depth)

Compression Depth

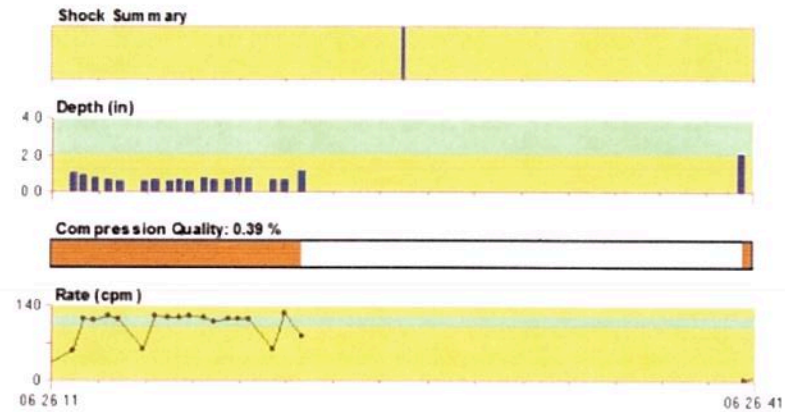
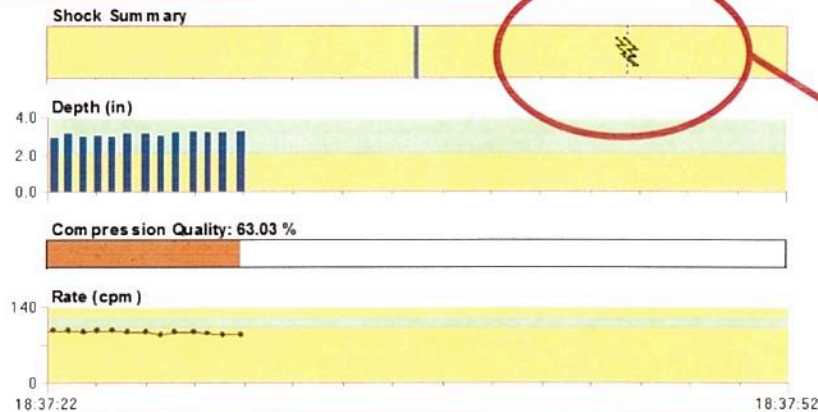
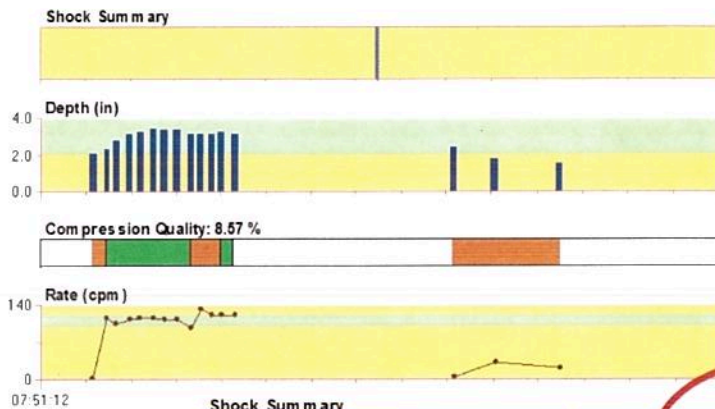


Compression Rate



Prolonged Pauses

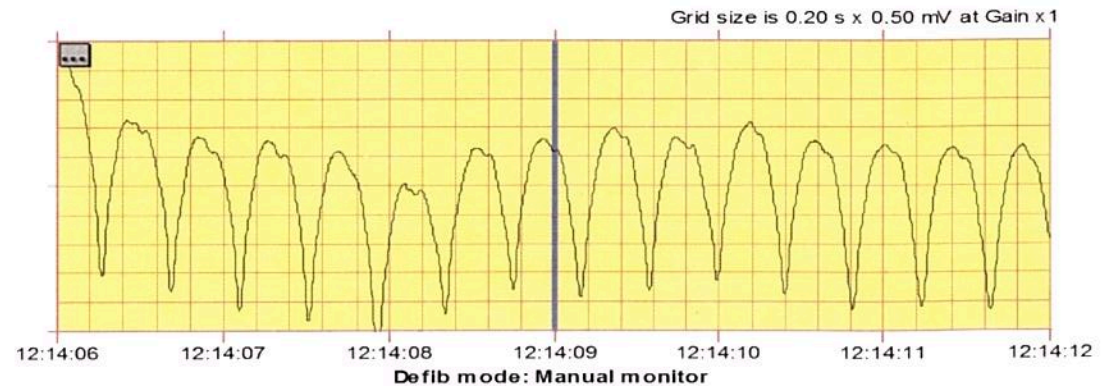
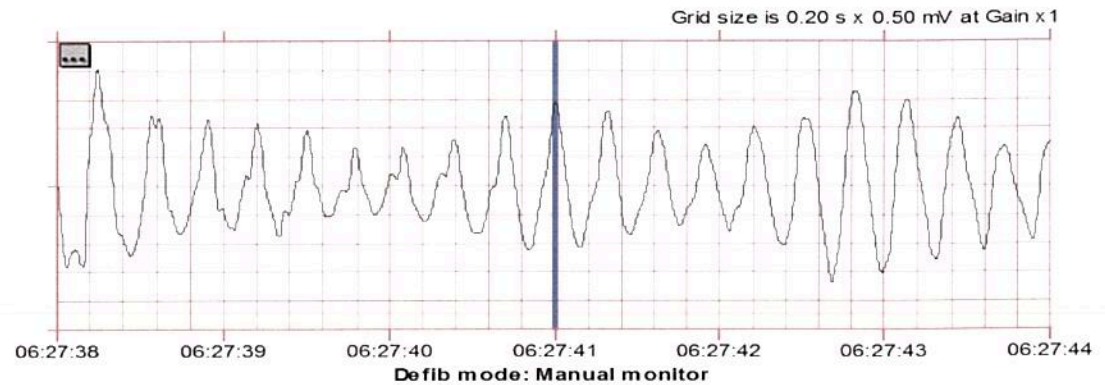
- Poor CPR Fraction – several pauses >10 sec (max 196 sec)



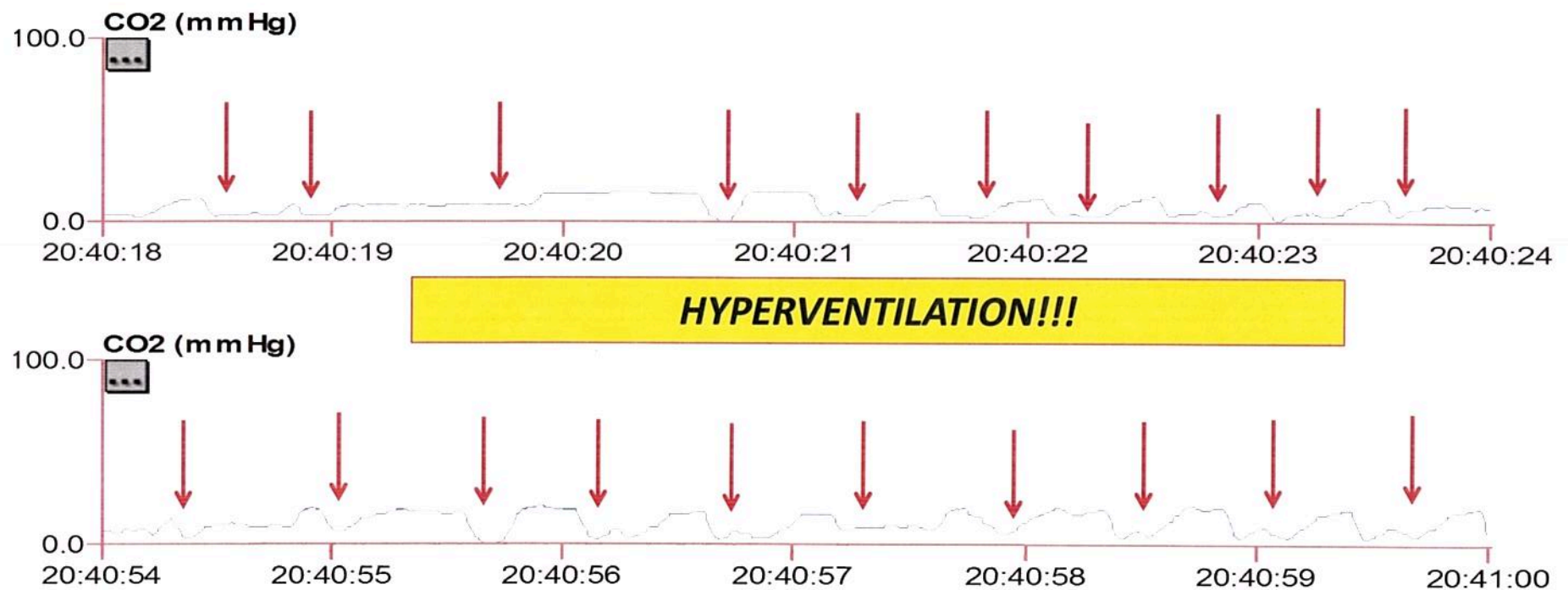
Pre-Shock Pause: 16 seconds
Post-Shock Pause: 15 seconds

Rhythm Recognition

- Rhythm Recognition
 - Torsades de pointes
 - No energy delivered
 - No Magnesium
 - No ROSC. Patient died.
 - Ventricular Tachycardia
 - 6 minutes to defib
 - No ROSC. Patient died.

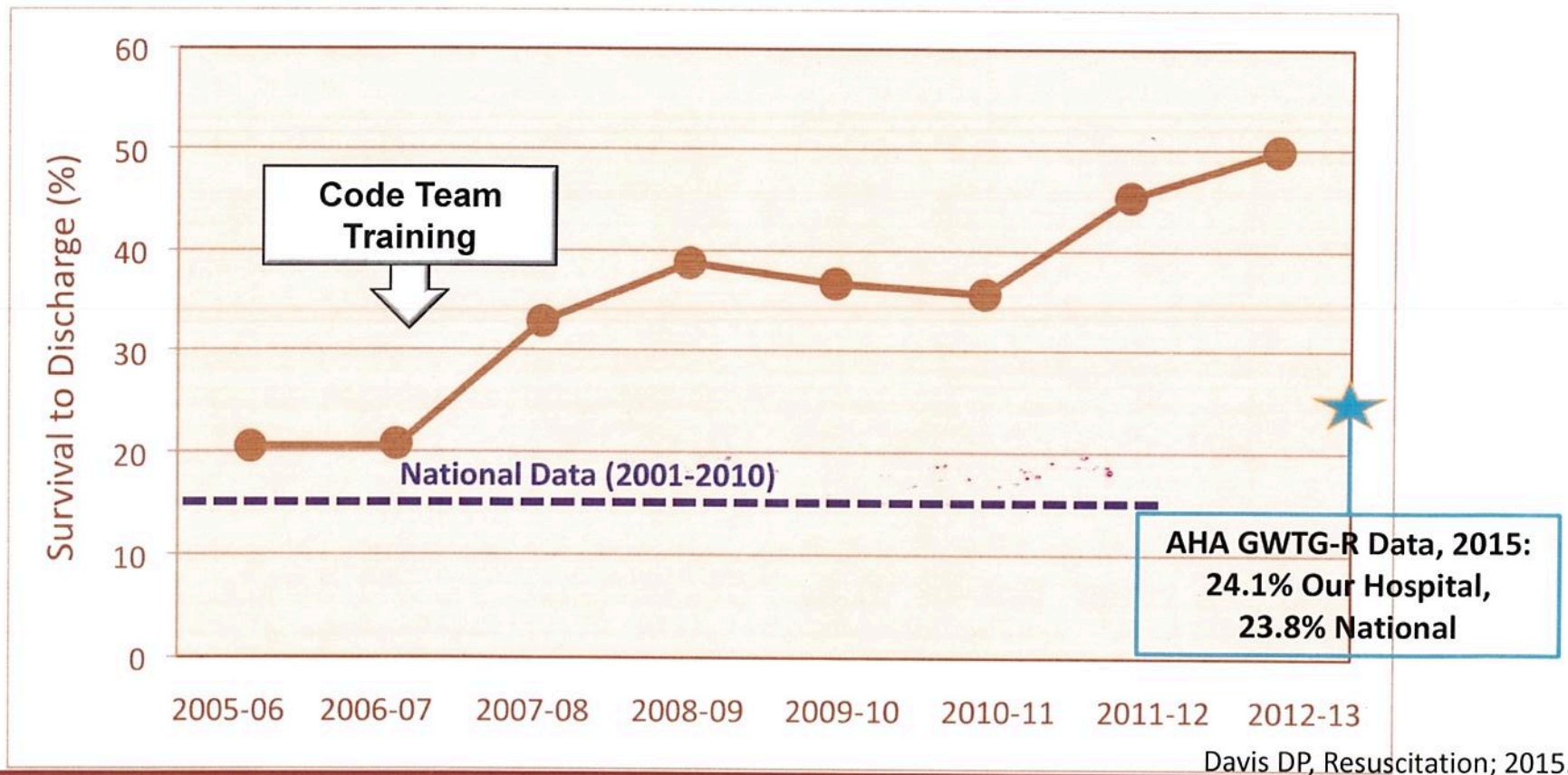


Inconsistent EtCO₂ Use, and...



- Each blip = 1 breath. Goal: 1 blip per 6 sec screen

Comparing Meaningful Outcomes



Step 2: Identify Key Stakeholders

Key Stakeholders

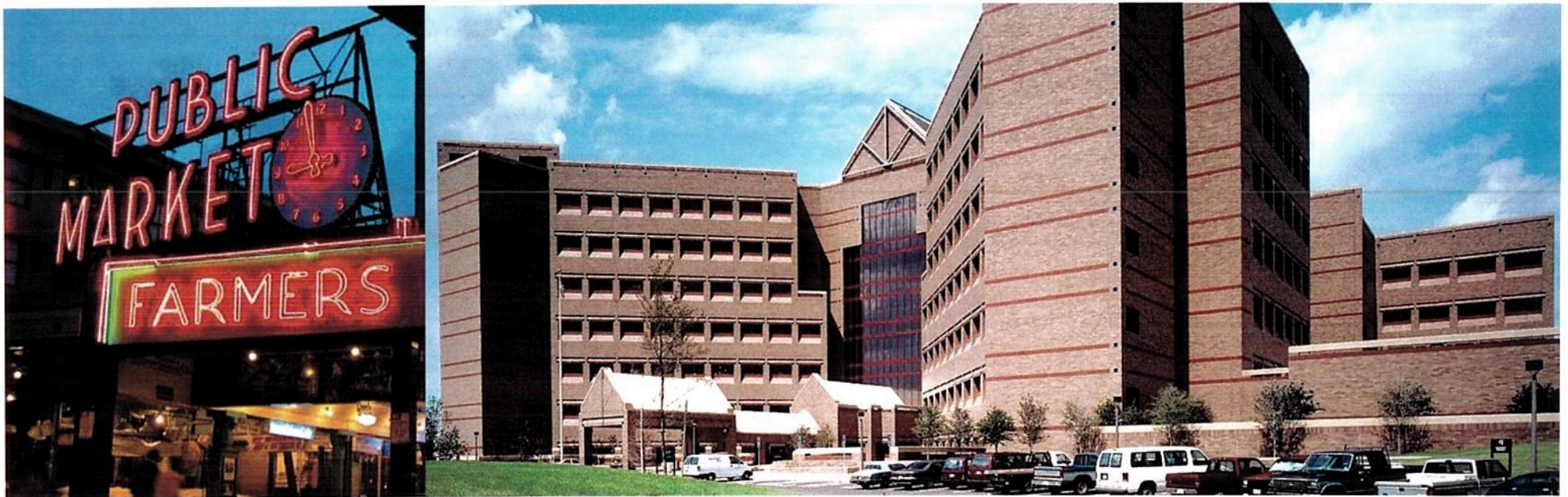
- ICU Nursing
- MICU
- Surgery
- Respiratory Therapy
- Pharmacy
- GME
- Hospital Education
- ED
- Anesthesia
- Pediatrics
- Neonatology
- Simulation Center
- Clinical Emergency Response Committee

Enlisting Buy-In

- **Garner Leadership Support**
- **Create a sense of urgency**
- **Know your audience...**
- **Reds:** Action oriented; want results NOW
- **Blues:** Interpersonal
- **Greens:** Problem solvers; Include Data
- **Yellows:** Detail oriented; enjoy structure; punctual

<https://www.paceorg.com/>

Creating a Sense of Urgency...



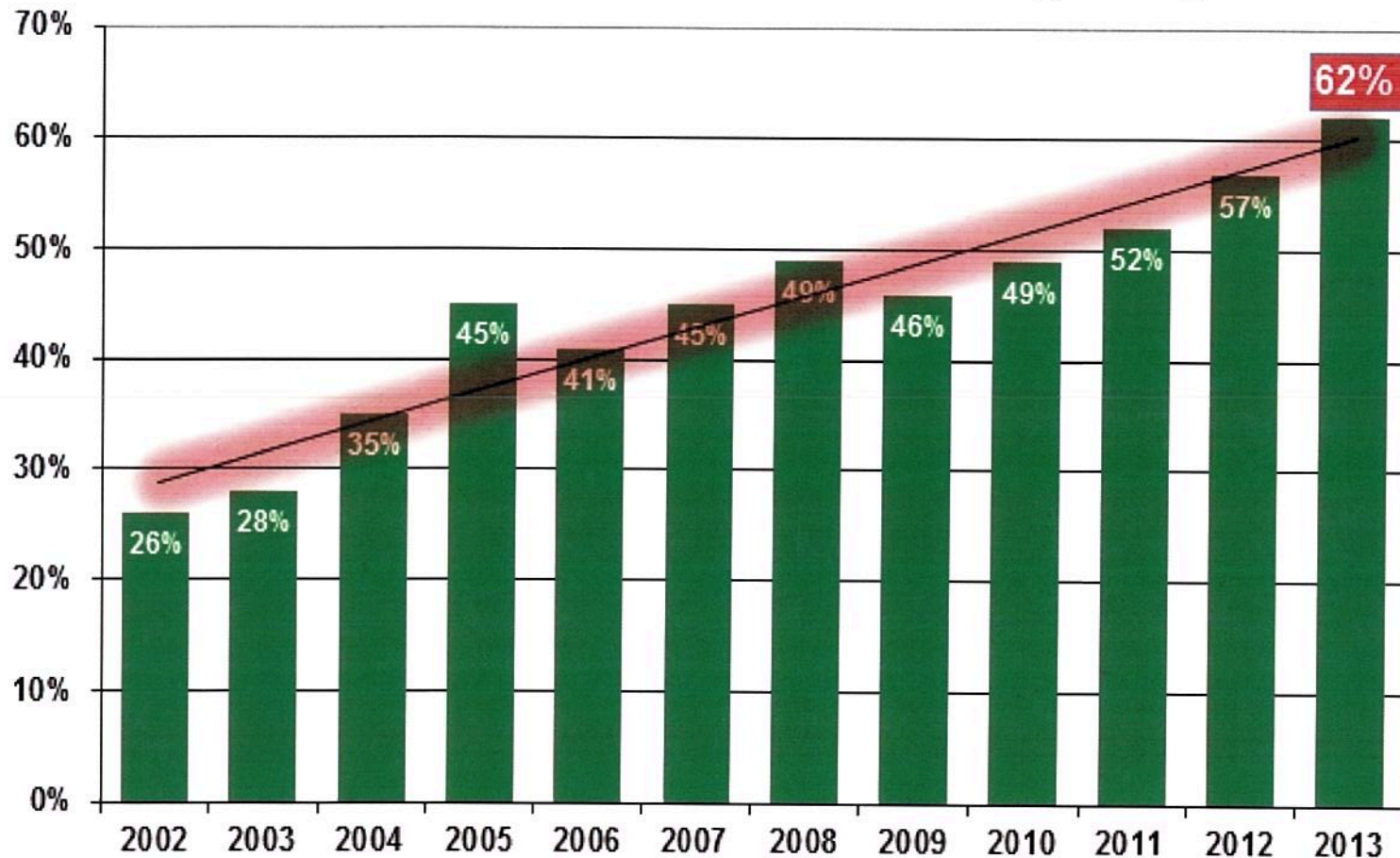
<http://thetraveljoint.com/daylife/pike-place-market-seattle/>

<https://www.clarkconstruction.com/our-work/projects/brooke-army-medical-center>

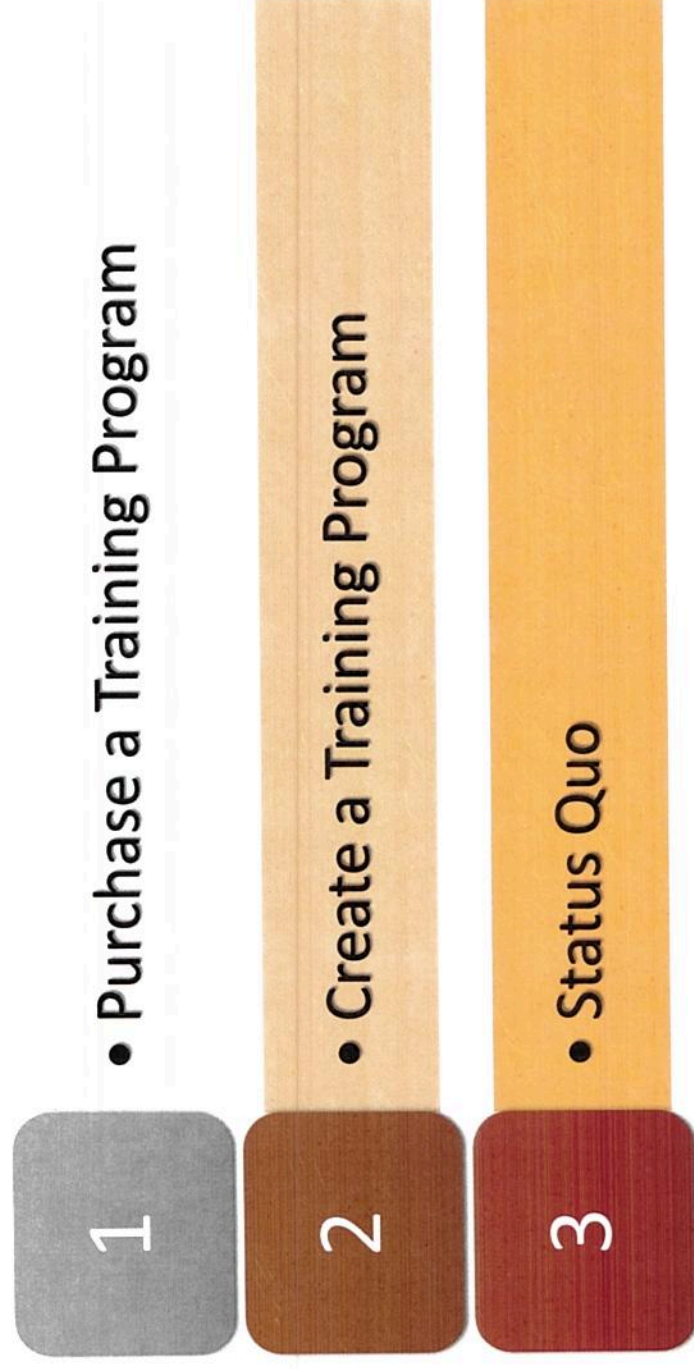
#IMSH2017

Success at Other Facilities

Cardiac Arrest Survival in Seattle & King County, 2002-2013



Considering Options



Step 3: Designing a Course

Educational Objectives

At the completion of the Code Team Training course, participants will be able to:

1. Recognize emergency situations
2. Identify the roles and responsibilities of each code team member
3. Describe 2015 AHA ACLS, BLS, and CPR updates
4. Perform and direct high quality CPR
5. Demonstrate the ability to use continuous waveform capnography to analyze CPR quality and transmit data to WiFi
6. Apply use of Team STEPPS in a code situation
7. Demonstrate the ability to provide effective closed-loop communication using SBAR, Call-outs, Check backs, and CUS words
8. Value individual code performance in improving cardiac arrest outcomes

Agenda

Purpose: To create Code Blue Team Leaders that will be empowered to improve resuscitation outcomes at SAMMC

0800: Welcome/Expectations/Background (*Pre-Survey Now!)

0805: Didactics

0905: Hands-on breakout session

CPR Quality Challenge

1000: Competency Simulation Stations

1130: Final Debrief/Questions/Evaluation/Post Survey

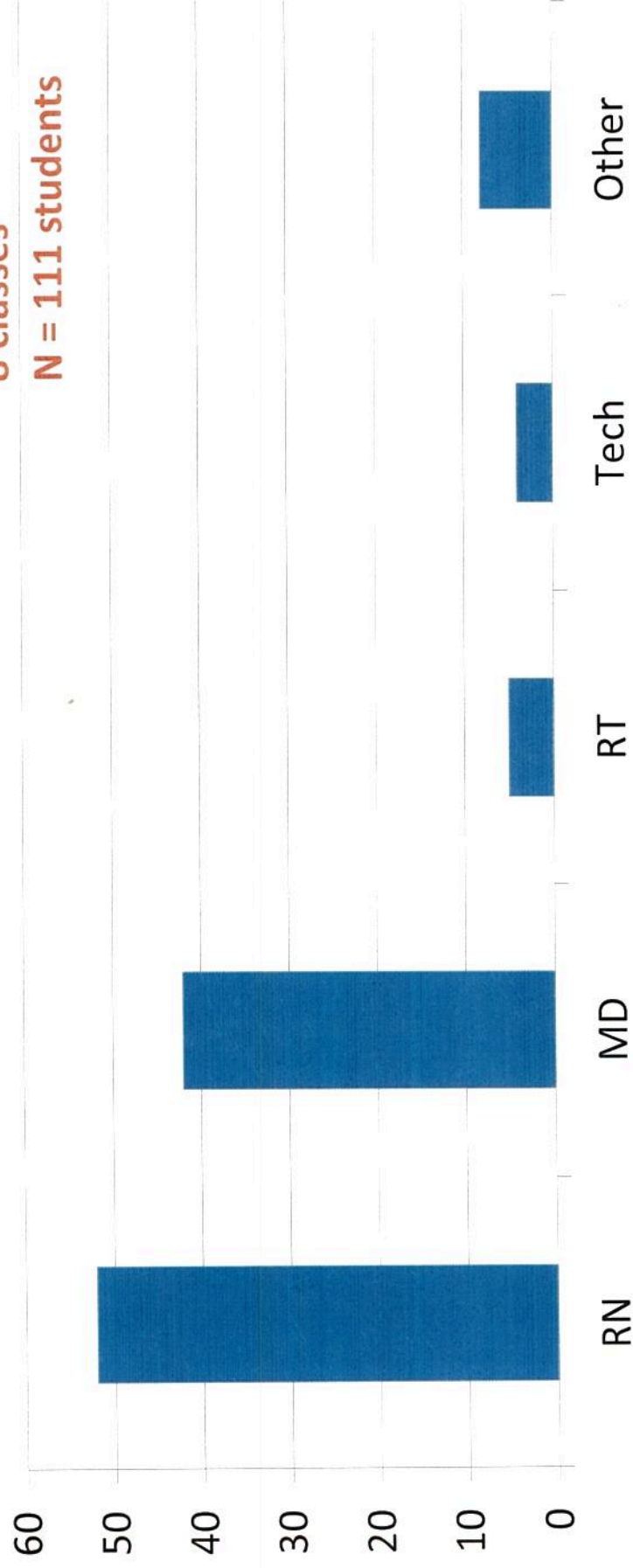
1200: Course Ends

Code Team Training

February – November 2016

8 classes

N = 111 students



Focus on CPR Basics

- Push Hard (>2 inches)
- Compression Rate 100-120
- Rapid defibrillation
- Reduce pauses (< 10 seconds)
- CPR after defibrillation
- Do NOT hyperventilate (1 breath q6 sec)
- Full chest recoil
- Rhythm recognition

WHEN do I call a Code Blue?

- **Any of these:**

- NOT Breathing
- NO Pulse
- No Response
- Patient is in an outpatient environment where the patient requires medical support that exceeds the capabilities of that area



HOW do I call a Code Blue?

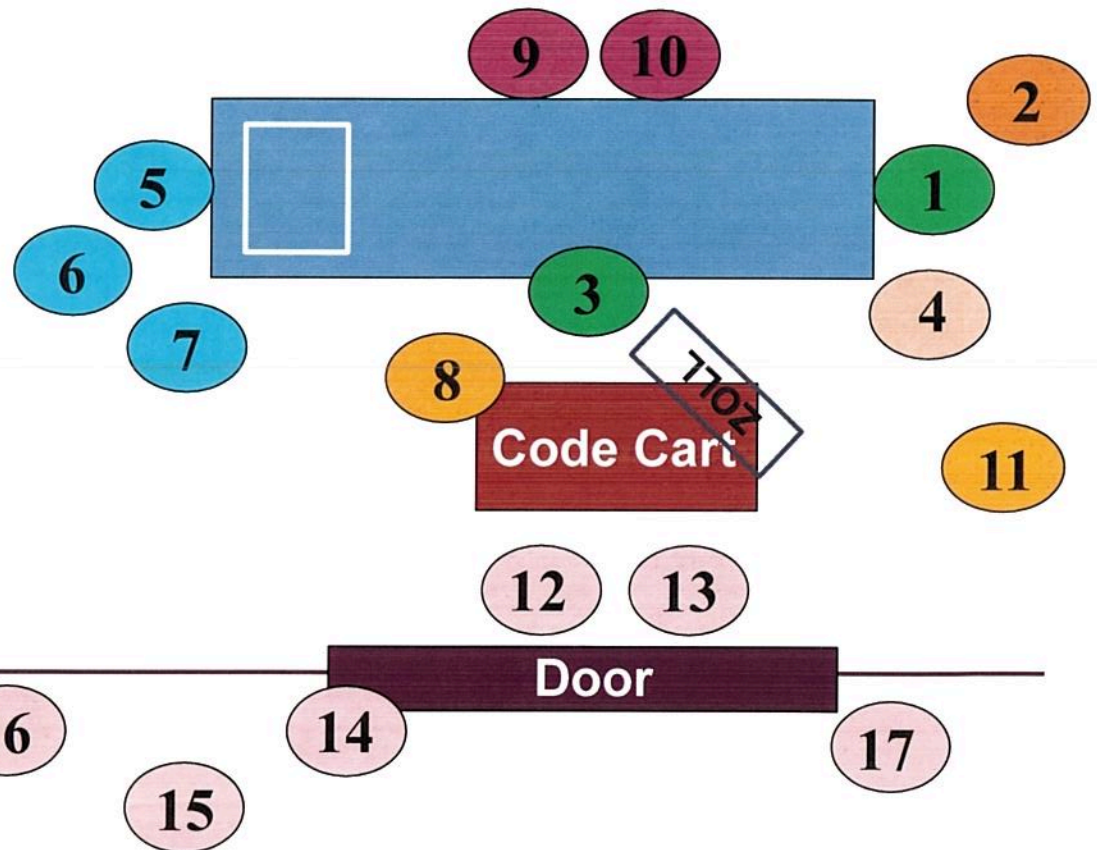
- **1. PUSH** the wall alert button near you
- **2. CALL 3-1111**
 - State: Adult vs Peds
 - Location (+ Room # when applicable)
 - Don't hang up until Comm confirms

Always do both



Code Team Roles

1. Physician Team Leader
2. Supervising Physician
3. Code Nurse – Meds/Defib
4. Code Nurse – Lead/Documenter
5. Anesthesia
6. Anesthesia
7. Respiratory Therapist
8. Surgeon
9. Compressor #1
10. Compressor #2 (Primary RN)
11. Primary Physician
12. Crash Cart 4NO
13. Pharmacist
14. Nursing Supervisor
15. Security
16. Chaplain
17. CERC Coordinator



Code Team Roles

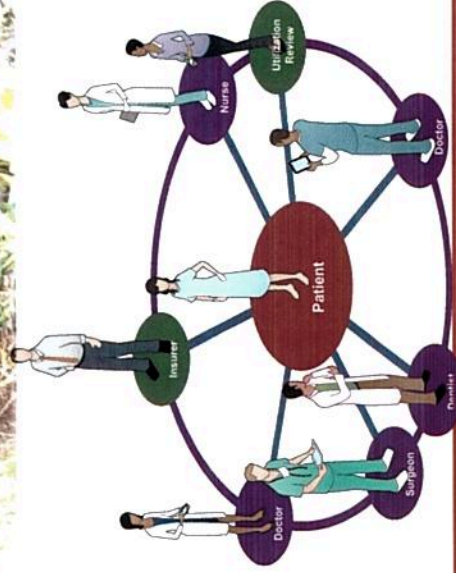
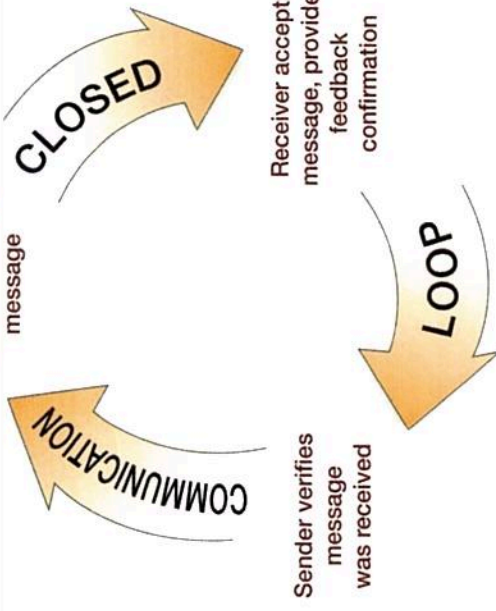
- CROWD CONTROL !!!!
- If needed, calls ICU to inform unit of patient transfer
- Facilitates completion of After Action Report



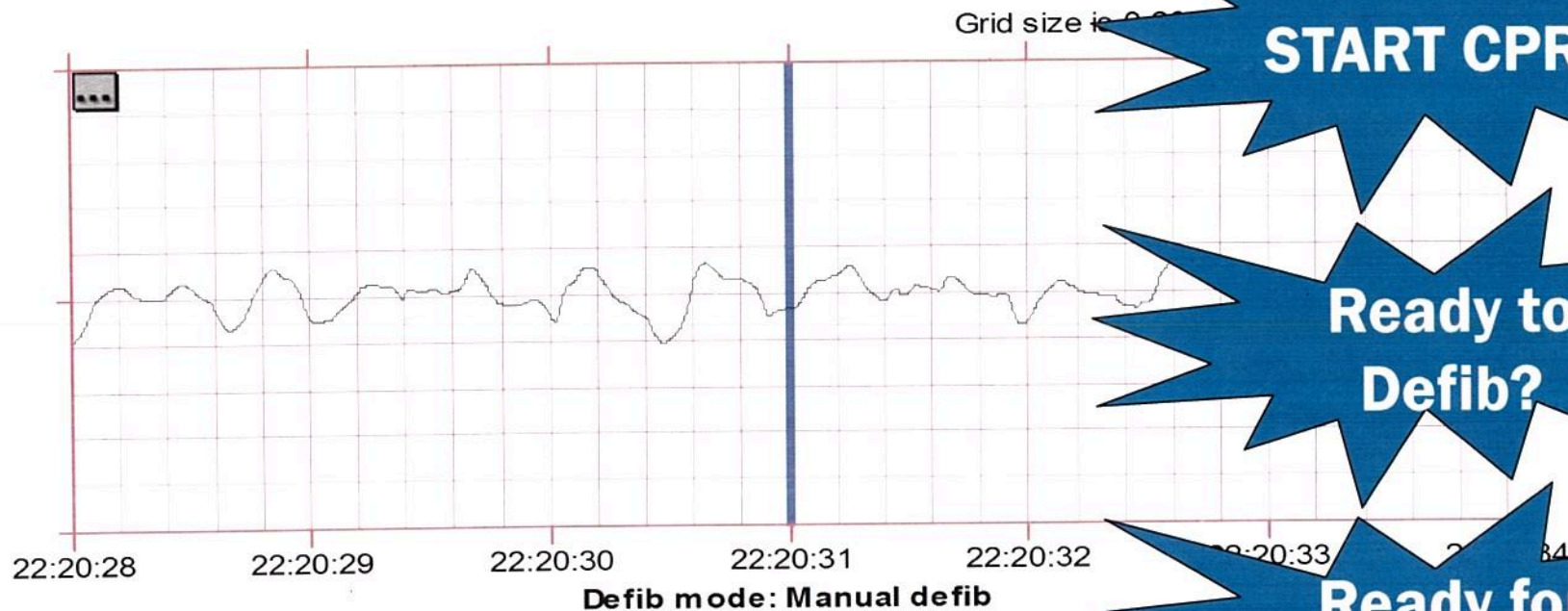
Team STEPPS



Sender initiates message



Rhythm Recognition



START CPR!

**Ready to
Defib?**

**Ready for
Epi?**

* Did you remember to have someone connect EtCO₂?

Rapid Defib Assessment

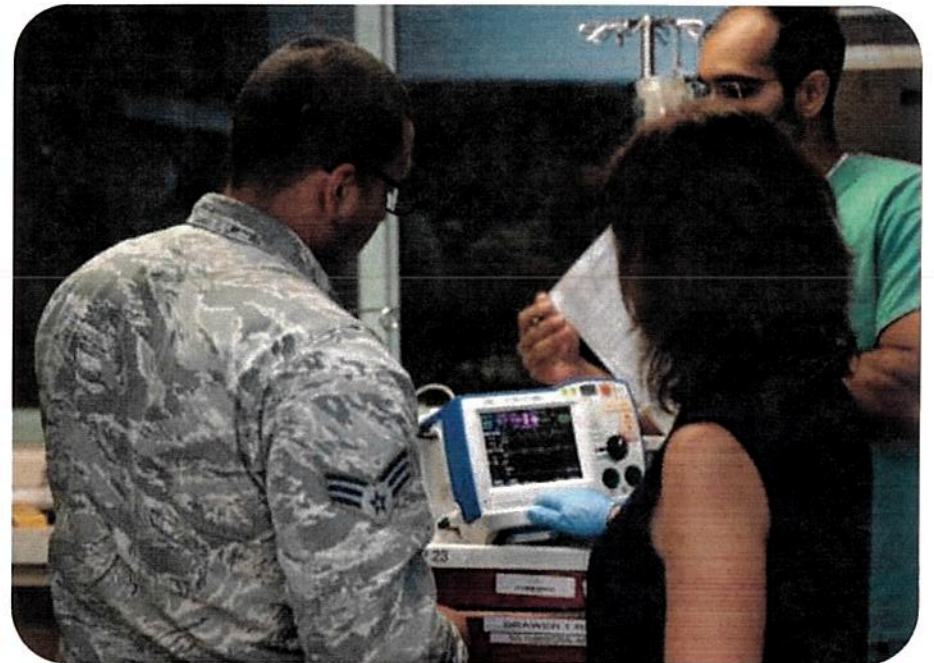


Data Transmission associated with survival!

	Transmitted Events	No WiFi Transmission	p-value
ROSC	63.9%	38.9%	0.0004
Survival to Hospital Discharge	35.1%	21.3%	0.043

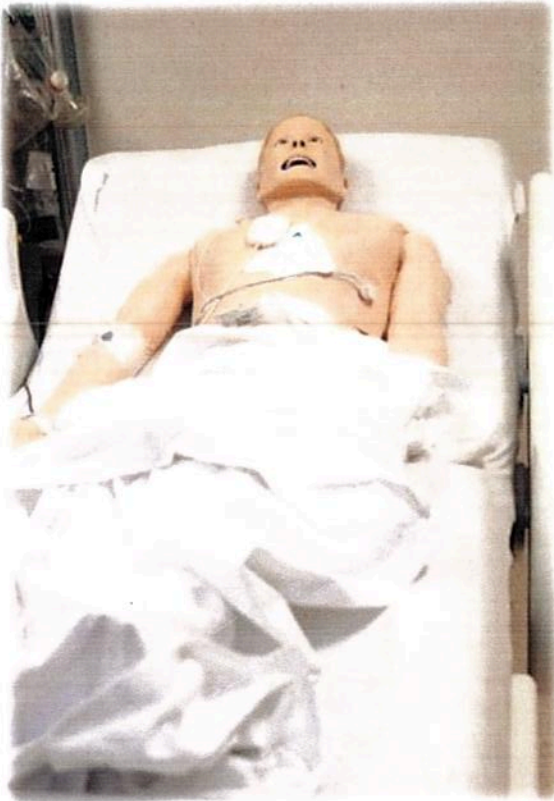
Hands-On Small Groups

- Crash Cart content review
- Zoll defibrillator hands-on
- Individual 1-minute CPR challenge with CodeNet feedback



Step 4: Incorporating Simulation

Competency Simulations



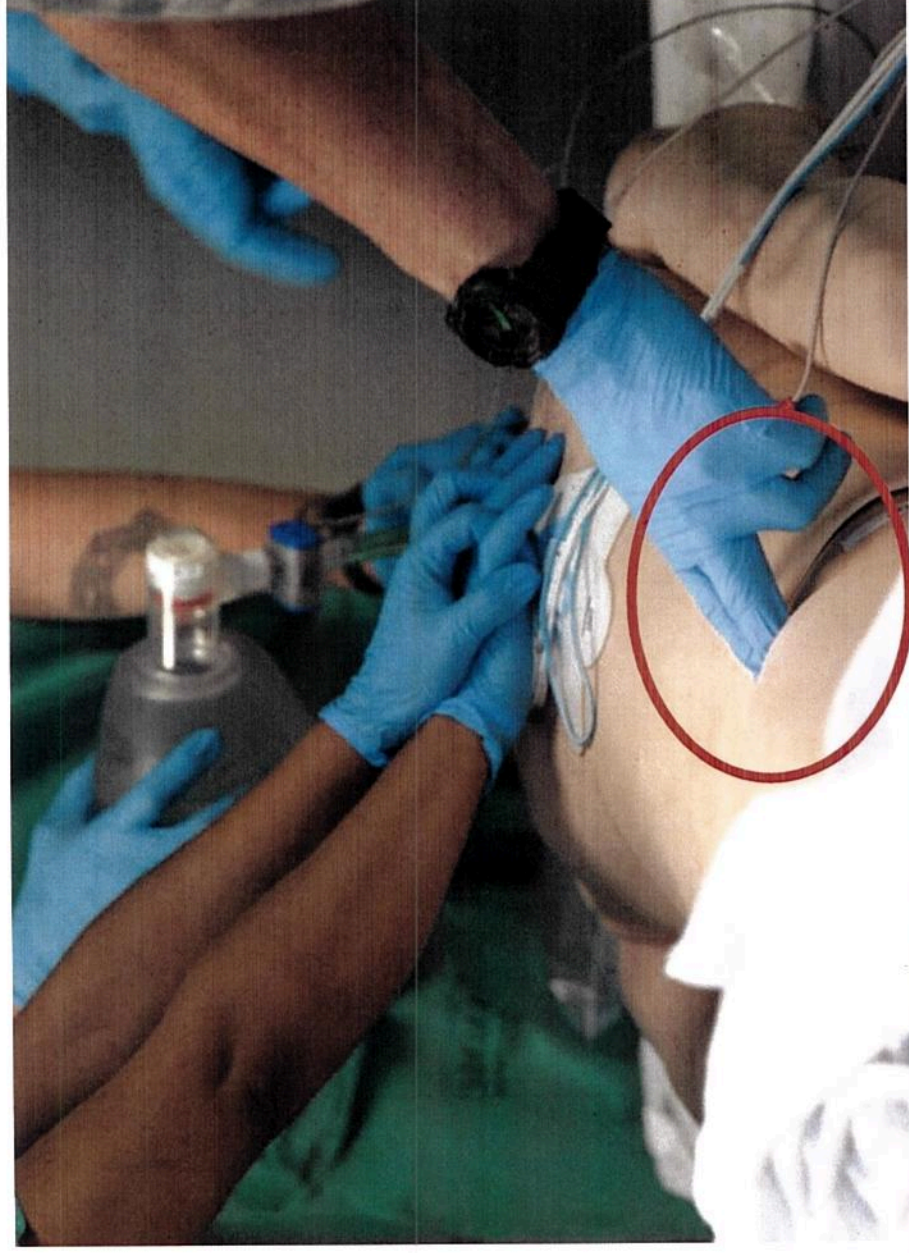
- SimMan™ 3G (Laerdal®)
- Team-based scenarios
- Team members ideally in their roles (6-10 per group)
- 2 sims based on real patients
- Use real crash carts with med lines for medications and fluids





#IMSH2017

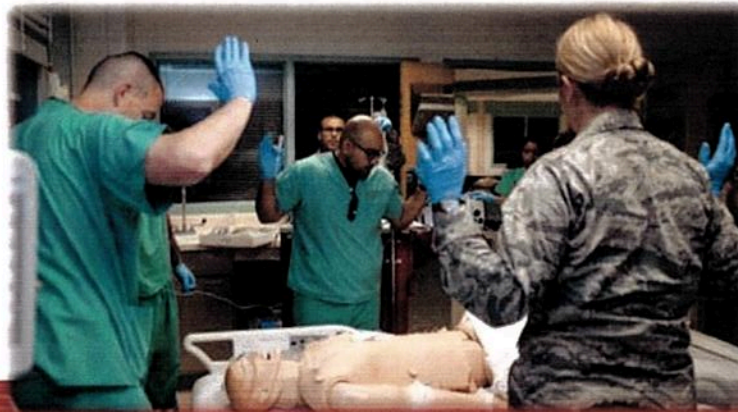
Strategies to Reduce Pauses

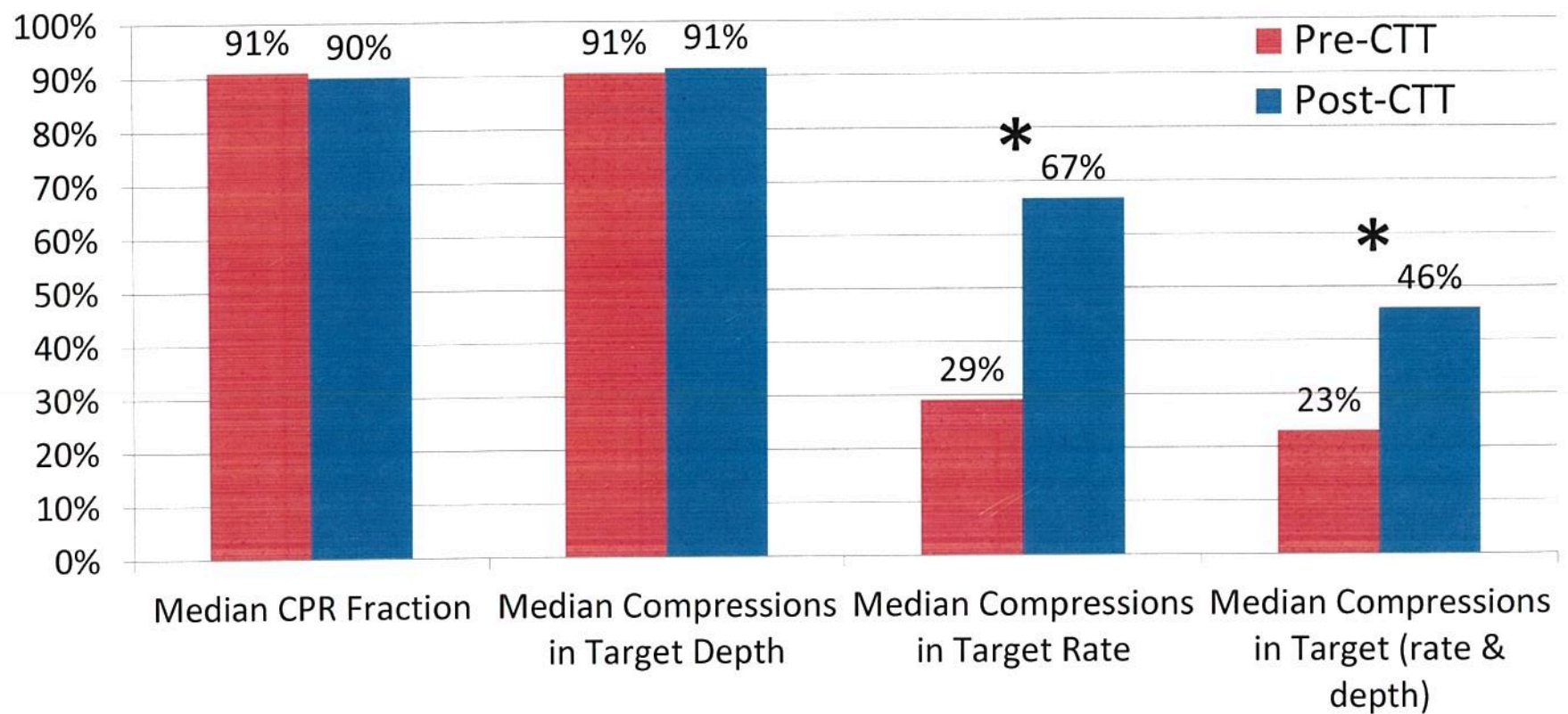




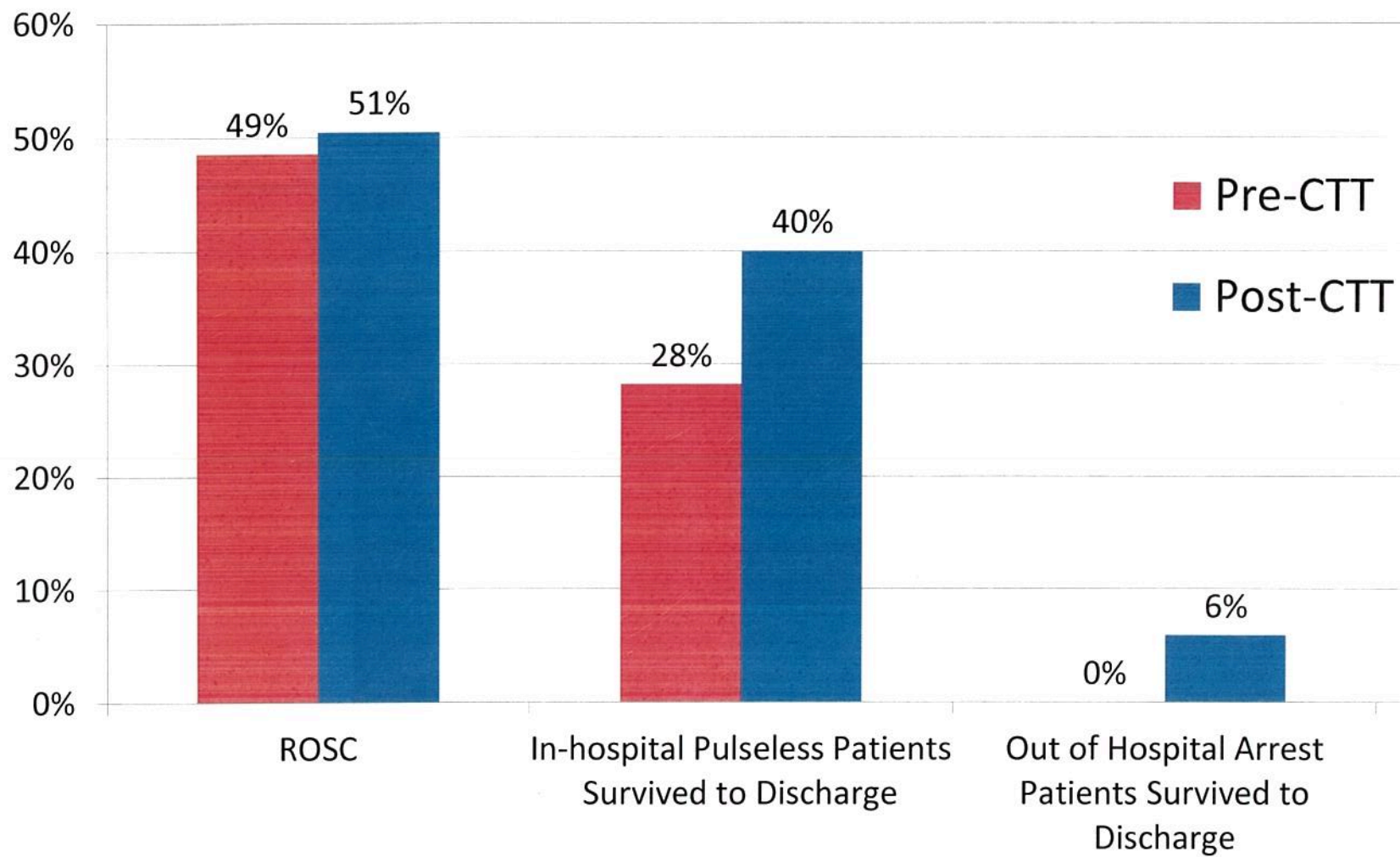
Results of Code Team Training (CTT)

	Pre-CTT	Post-CTT
Pulseless events, n	142	91
Pulseless patients, n	112	79
Events Transmitted to CodeNet, n (%)	63 (44.4%)	43 (47.3%)
Total Compressions, n	52,795	50,169
Median Compressions, n	599	903
Median Time in Compressions, min:sec	06:07	07:39





* $p < 0.05$



Participant Feedback

- *"I feel like my ability to perform high quality CPR has improved as a result of this course."*
- *"I learned skills relevant to code team participation in this course."*
- *"I believe that a Code Blue Team dedicated to running all code blue events will lead to more organization and ultimately to better patient outcomes."*
- 87.5% of participants felt like their confidence in code team participation improved as a result of the course.

Overall Goals

- Would more people survive if we did better CPR?
 - Estimated in-hospital pulseless cardiac arrests at SAMMC for 2015: 92 patients
 - 24% survival: 22 patients
 - 40% survival: 37 patients
- This is already working! CPR quality increased from 23% to 46% in target and survival is up to 38%
 - Units with trained nurses have better CPR quality
 - 10 inpatient lives saved in the 1st year of CTT (+ 5 lives from CPR in progress)
- *1 life saved for every 6-7 in-hospital pulseless codes*

← 15 lives per year!

Next Steps

- Complete Training Key Team Members
- Continued Support:
 - Running this course is time-intensive and labor-intensive
 - Applying for a JPC-1 Simulation Grant to continue to institutionalize this project
- Follow-up:
 - Plan is to check in q3 months for a 2 minute CPR challenge and a 3-minute knowledge and attitude questionnaire

Questions?



Thank you for attending



IMSH

Society for Simulation in Healthcare

JANUARY 28-FEBRUARY 1, 2017 | ORLANDO, FL USA

Staff who are covered under the SRMC Assurance who plan to perform an activity but are unclear as to whether it constitutes research or an activity that is not research such as utilization review, performance or quality improvement and who desire a review and determination from the Human Research Protection Office, should complete this application. See HRPP Policy Memo 3.9, Determinations of Not Research for further guidance.

Section 1: General Contact Information

Name of project lead:	Dr. Renee I Matos
Organization	Clinical Emergency Response Committee, Department of Pediatrics
Phone number:	210-916-1070
Email address:	renee.i.matos.mil@mail.mil
Other staff on project:	Dr. Heather Delaney, Dr. Erika Bernardo, Dr. Sara Bibbens
Date of submission:	11/10/15
Title of project:	Improving Compression Quality at a Single Institution Through Real-Time CPR Feedback

Section 2: Parameters *Select all that apply*

<input type="checkbox"/>	The project includes testing the safety and efficacy of a drug or device in a human subject.																		
<input type="checkbox"/>	You PRIMARILY intend the information you learn from this project to be generalizable beyond your institution <i>If yes, describe in section 3</i>																		
<input checked="" type="checkbox"/>	You PRIMARILY intend the information you learn to provide immediate and continuous improvement and feedback at your institution <i>If yes, describe in section 3</i>																		
<input type="checkbox"/>	The activities or interventions are considered standard of care <i>If yes, describe in section 3</i>																		
<input type="checkbox"/>	Data will be collected from living individuals through some type of intervention <i>If yes, describe in section 3</i>																		
<input type="checkbox"/>	You will interact with a living individual <i>If yes, describe in section 3</i>																		
<input checked="" type="checkbox"/>	<p>You will access individually identifiable information <i>If yes, specify the identifiers below</i></p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Names</td> <td><input type="checkbox"/> License number</td> <td><input type="checkbox"/> Photo or audio recordings</td> </tr> <tr> <td><input type="checkbox"/> Address</td> <td><input type="checkbox"/> Phone numbers</td> <td><input type="checkbox"/> Unique code, including rank</td> </tr> <tr> <td><input type="checkbox"/> SSN</td> <td><input type="checkbox"/> Fax numbers</td> <td><input type="checkbox"/> Health plan number</td> </tr> <tr> <td><input checked="" type="checkbox"/> MRN</td> <td><input type="checkbox"/> E-mail</td> <td><input type="checkbox"/> Biometric identifiers</td> </tr> <tr> <td><input type="checkbox"/> URL</td> <td><input type="checkbox"/> IP address</td> <td><input type="checkbox"/> Device identifiers</td> </tr> <tr> <td><input checked="" type="checkbox"/> Dates</td> <td><input type="checkbox"/> VIN number</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Names	<input type="checkbox"/> License number	<input type="checkbox"/> Photo or audio recordings	<input type="checkbox"/> Address	<input type="checkbox"/> Phone numbers	<input type="checkbox"/> Unique code, including rank	<input type="checkbox"/> SSN	<input type="checkbox"/> Fax numbers	<input type="checkbox"/> Health plan number	<input checked="" type="checkbox"/> MRN	<input type="checkbox"/> E-mail	<input type="checkbox"/> Biometric identifiers	<input type="checkbox"/> URL	<input type="checkbox"/> IP address	<input type="checkbox"/> Device identifiers	<input checked="" type="checkbox"/> Dates	<input type="checkbox"/> VIN number	
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<input type="checkbox"/> SSN	<input type="checkbox"/> Fax numbers	<input type="checkbox"/> Health plan number																	
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<input checked="" type="checkbox"/> Dates	<input type="checkbox"/> VIN number																		
<input checked="" type="checkbox"/>	Do you intend to publish this project?																		

Section 3: Project Description

Part I: Process, program, or system to be improved or assessed

The 2015 American Heart Association guidelines recommend a cardiopulmonary resuscitation (CPR) depth of 2 inches and a rate of 100-120 compressions per minute. This project aims to evaluate the improvement of CPR quality provided during cardiopulmonary arrest events at our facility, through the use of real-time audiovisual feedback with Zoll defibrillators. Zoll defibrillators have already been deployed at SAMMC. These defibrillators are able to collect information regarding the quality of chest compressions (ie. rate and depth) provided during CPR, and allow for real-time feedback of CPR quality. These data are currently evaluated by the Clinical Emergency Response Committee as part of ongoing quality improvement and are reported to the Medical Care-Line Team, the Process Improvement and Patient Safety Committee, and then to the Medical Staff Executive Committee. We plan to evaluate the data obtained from code events over the last 18 months, and observe the impact of real-time audio-visual feedback on the quality of CPR during 6 month intervals. We will also look for an association between high quality CPR and select patient outcomes including return to spontaneous circulation (ROSC) and survival to hospital discharge.

Part II: Purpose and/or intent

The purpose of this project is to evaluate the improvement to the quality of CPR delivered at our facility after utilizing real-time audio-visual feedback for chest compressions. We will additionally observe for improvements in CPR quality and patient outcomes which could, in turn, impact the overall mortality associated with in-hospital pulseless cardiac arrest.

Part III: Performance indicators / Quality Benchmarks

- 1) We will assess CPR quality of transmitted CPR data. Specifically, we will examine chest compressions delivered within target rate (100-120 min⁻¹) and depth (>2 inches), in accordance with the 2015 AHA guidelines on CPR. And then determine if any improvements have been made in CPR quality.
- 2) We will assess the rate of ROSC following in-hospital pulseless cardiac arrest after which the CPR data was transmitted for quality evaluation, and compare with code events where data was not transmitted and quality could not be evaluated.
- 3) We will assess the rate of survival to hospital discharge following in-hospital pulseless cardiac arrest during which CPR was performed and recorded, and compare with code events where data was not transmitted and quality could not be evaluated.

Part IV: Project Description / Methodology

Zoll® (Chelmsford, MA) R series® defibrillators were deployed at our institution in February 2015. Using CodeNet® (Zoll, Chelmsford, MA) software, these defibrillators were used to document CPR quality, including chest compression rate and depth, which are reviewed by Dr. Matos. Beginning in February 2015, our facility was collecting real-time CPR quality data from cardiopulmonary arrest events. CPR data from the code event must be transmitted by the provider at the end of the code for quality analysis. If data is not transmitted after the code event, quality data regarding compressions within AHA target guidelines cannot be determined.

Part v: Data to be collected

We will collect retrospective demographic data for each event (from February 2015 to July 2016) including event location (ex. ICU vs. ED vs. OR) and patient age. We will also collect data about CPR quality, including chest compression rate and depth, underlying rhythm, as well as length of the cardiopulmonary arrest event for the transmitted events. Additionally, patient outcomes – ROSC and survival to hospital discharge – will be assessed for all events.

Part VI: Anticipated effect on process, program, or system

High-quality CPR is the primary component in influencing ROSC and survival from cardiac arrest. We believe that there will be a gradual improvement in CPR quality over the 18 month time period with the addition of real-time audio-visual feedback and further CPR training for hospital staff. We also believe there will be an association between improvement in CPR quality and ROSC and survival to hospital discharge when comparing zoll data in 6 month increments over an 18 month period. We do not have the ability to compare CPR quality data prior to implementation of the Zoll, but we can compare historical data on ROSC and survival hospital discharge.

With the information we receive from this project, we plan to evaluate other feedback mechanisms to further improve CPR and resuscitation quality.

Signature obtained in first submission

For processing of the determination, please complete the application above and return the completed form via email to: Ileana King-Letzkus, Sr. Education and Training Coordinator (Ileana.e.king-letzkus.civ@mail.mil)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
REGIONAL HEALTH COMMAND CENTRAL (PROVISIONAL)
4070 STANLEY ROAD, SUITE 121
JBSA FORT SAM HOUSTON, TEXAS 78234-2715

MCSR-CS

28 November 2016

MEMORANDUM FOR Dr. Renee I Matos, Clinical Emergency Response Committee,
Department of Pediatrics, SAMMC

SUBJECT: Request for Not Research Determination of Your Project, "Improving
Compression Quality at a Single Institution through Real-Time CPR Feedback"

1. Thank you for submitting your project, "Improving Compression Quality at a Single Institution through Real-Time CPR Feedback". The project is designed to use the performance data collected by the Zoll defibrillators to evaluate the quality of cardiopulmonary resuscitation (CPR) events since implementation at this institution in February 2015. Additionally, the project will collect retrospective information on CPR patient outcomes to evaluate improvement in patient care at this institution. The proposed activity does not meet the definition of research as defined in 32 CFR 219.102(d) as it is not intended or designed to create generalizable knowledge. The activity, as described, does not require an IRB submission.
2. Any manuscripts resulting from the project described must be submitted for review and clearance prior to publication IAW your institutions local publication clearance policy. Many journals are interested in publishing projects that are not research. If you do decide to publish your findings, please use paragraph headings such as: "issue," "procedures for collecting and evaluating information," "information found," "lessons learned," etc. and avoid using headings such as "research questions or hypothesis," "methods," "results," "study limitations," etc.
3. For any questions or concerns, please contact Ileana King-Letzkus at Ileana.e.King-Letzkus.civ@mail.mil or by phone at 916-2000.

LYNN S. PLATTEBORZE
MS, RAC, CIP
SRMC Exemption Determination Officer